

State/Industry Ambient Monitoring Network

Air Quality Report

3rd Quarter 2004

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SECTION ONE

DISCUSSION OF MONITORING RESULTS

Sulfur Dioxide (SO₂)

There were no exceedances of the federal standards during the quarter. There was no exceedance of the State 1-hour standard. The maximum 1-hour concentration was 94 ppb on September 9 at DGC #16; the maximum 3-hour concentration was 64 ppb on August 9 at Mandan - SPM; and, the maximum 24-hour concentration was 29 ppb on August 9 at Mandan - SPM. The highest arithmetic mean is 4.3 ppb at Mandan - SPM. All sites achieved at least an 80% data recovery for the period operated.

Sulfur Dioxide (SO₂) 5-Minute Average

The maximum 5-minute concentration was 173 ppb on September 10 at Hannover. All sites achieved at least an 80% data recovery for the period operated.

Ozone (O₃)

There was no exceedance of the ozone standard during the quarter. The highest observed 1-hour concentration was 71 ppb on September 12 at Fargo-NW. The highest 4th highest 8-hour concentration was 58 ppb on August 7 at TRNP-NU. All sites achieved at least an 80% data recovery for the period operated.

Nitrogen Dioxide (NO₂)

The highest observed 1-hour concentration was 37 ppb on September 26 at Fargo-NW. The maximum arithmetic mean concentration was 4.4 ppb on at Fargo NW. All sites achieved at least an 80% data recovery for the period operated.

Ammonia (NH₃)

The highest 1-hour concentration was 115.5 ppb on September 26 at Beulah North . The site achieved at 80% data recovery for the period.

The data is used as part of the ambient data input used by the newer dispersion models.

Inhalable Continuous PM_{2.5} Particulates

There was no exceedance of the 24-hour standard during the quarter. The highest 1-hour concentration was 66.6 µg/m³ on July 4 at Fargo NW. The highest 24-hour concentration was 23.5 µg/m³ on August 16 at TRNP - SU (Painted Canyon). The highest arithmetic mean concentration was 6.8 µg/m³ at Beulah - North. All sites achieved at least an 80% data recovery for the period operated..

Dunn Center began operation on September 8.

Inhalable PM_{2.5} Particulates

There was no exceedance of the 24-hour standard during the quarter. The highest 24-hour average concentration was 15.9 µg/m³ on July 17 at Fargo NW. The highest arithmetic mean was 6.7 µg/m³ at Fargo NW. All sites achieved at least an 80% data recovery for the period.

Inhalable Continuous PM₁₀ Particulates

There was no exceedance of the 24-hour standard during the quarter. The highest 1-hour concentration was 133.0 µg/m³ on August 20 at Fargo NW. The maximum 24-hour concentration was 49.8 µg/m³ on August 17 at Fargo NW. The highest arithmetic mean was 19.8 µg/m³ at Fargo NW. The site achieved at 80% data recovery for the period.

Dunn Center began operation on September 8.

Inhalable PM₁₀ Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour average concentration was 43 µg/m³ on July 26 at Bismarck Residential. The highest arithmetic mean was 18 µg/m³ at Bismarck Residential. At least an 80% data recovery for the period was achieved.

SECTION TWO

AMBIENT AIR QUALITY DATA

SUMMARIES

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD				
Amerada Hess - Tioga #1	2004	JUL-SEP	2188	28 09/25:04	27 09/25:07	16 09/25:08	12 09/25:05	7 09/25	2 09/14	1.3			13.0
Amerada Hess - Tioga #3	2004	JUL-SEP	2182	39 07/22:08	38 07/21:16	26 08/08:23	25 08/18:14	12 08/18	11 08/09	2.5			19.5
Bear Paw - MGP #3	2004	JUL-SEP	2163	5 07/01:04	5 07/13:08	4 07/01:05	3 08/22:20	2 07/01	2 08/03	1.1			4.3
Bear Paw - MGP #5	2004	JUL-SEP	2187	60 08/20:11	27 08/20:12	27 08/20:11	19 08/20:14	7 08/20	3 07/16	1.1			5.2
Beulah - North	2004	JUL-SEP	2186	60 07/25:07	31 07/25:08	33 07/25:08	20 08/02:17	5 08/03	5 07/25	2.1			25.9
DGC #12	2004	JUL-SEP	2197	64 07/25:08	39 07/25:06	47 07/25:08	20 09/09:14	7 07/25	6 08/03	2.1			24.3
DGC #14	2004	JUL-SEP	2198	38 08/04:11	35 07/11:08	22 08/03:08	21 08/20:14	11 08/04	6 08/20	2.0			18.8
DGC #16	2004	JUL-SEP	2196	94 09/09:09	61 09/09:14	35 09/08:14	34 09/09:11	16 09/08	13 09/09	2.4			23.3
DGC #17	2004	JUL-SEP	2192	60 09/09:10	47 08/07:11	36 09/09:11	30 09/09:14	13 09/09	10 08/04	2.0			18.2
Dunn Center	2004	JUL-SEP	2190	14 07/01:08	14 07/11:07	11 07/01:11	11 07/11:08	4 07/01	3 08/03	1.2			7.6
Fargo NW	2004	JUL-SEP	2195	3 07/02:03	3 07/02:05	3 07/02:05	2 09/18:11	1 07/02	1 09/16	1.0			1.4
Hannover	2004	JUL-SEP	2190	87 09/10:07	85 07/04:08	55 07/04:08	48 08/12:11	11 09/27	10 08/12	2.9			29.2
Lostwood NWR	2004	JUL-SEP	2188	22 09/12:12	20 09/12:16	16 09/12:14	14 09/12:17	5 09/12	4 09/10	1.3			8.8
Mandan - SPM	2004	JUL-SEP	2193	85 08/09:07	84 08/18:05	64 08/09:08	59 08/18:05	29 08/09	24 08/18	4.3			28.4

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST	2ND	1ST	2ND	1ST	2ND				
				MM/DD:HH	MM/DD:HH	MM/DD:HH	MM/DD:HH	MM/DD	MM/DD				
Mandan NW - SPM	2004	JUL-SEP	1805	85 09/18:07	77 07/31:10	48 08/06:02	46 07/31:11	13 08/05	12 08/20	3.7			38.2
TRNP - NU	2004	JUL-SEP	2194	7 07/01:10	7 08/03:01	6 08/03:02	6 07/01:11	3 08/16	3 08/03	1.2			11.4
TRNP - SU (Painted Canyon)	2004	JUL-SEP	2047	16 07/23:06	12 07/06:23	6 07/23:08	5 07/06:23	2 07/23	2 08/02	1.1			5.9

The maximum 1-hour concentration is 94 ppb at DGC #16 on 09/09:09
The maximum 3-hour concentration is 64 ppb at Mandan - SPM on 08/09:08
the maximum 24-hour concentration is 29 ppb at Mandan - on 08/09
The highest arithmetic mean is 4.3 ppb at Mandan - SPM

* The air quality standards are:

STATE Standards -

- 1) 273 ppb maximum 1-hour average concentration.
- 2) 99 ppb maximum 24-hour average concentration.
- 3) 23 ppb maximum annual arithmetic mean concentration.

FEDERAL Standards -

- 1) 500 ppb maximum 3-hour concentration not to be exceeded more than once per year.
- 2) 140 ppb maximum 24-hour concentration not to be exceeded more than once per year.
- 3) 30 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	5 - M I N U T E M A X I M A						# HOURS >600	% >MDV
				1ST	DATE	2ND	DATE	3RD	DATE		
					MM/DD:HH		MM/DD:HH		MM/DD:HH		
Amerada Hess - Tioga #1	2004	JUL-SEP	2188	57	09/14:08	57	09/25:07	46	09/25:04	0	21.8
Amerada Hess - Tioga #3	2004	JUL-SEP	2182	129	07/20:17	122	07/18:13	93	07/21:17	0	30.7
Bear Paw - MGP #3	2004	JUL-SEP	2163	24	07/15:14	11	07/13:08	10	08/22:18	0	10.0
Bear Paw - MGP #5	2004	JUL-SEP	2187	148	08/20:11	74	08/20:13	62	08/20:12	0	13.4
Beulah - North	2004	JUL-SEP	2186	107	08/15:10	93	07/25:07	68	07/25:08	0	36.0
Dunn Center	2004	JUL-SEP	2190	24	07/01:10	24	07/01:11	23	07/11:07	0	13.9
Fargo NW	2004	JUL-SEP	2052	6	07/01:07	6	07/02:02	6	07/22:07	0	4.4
Hannover	2004	JUL-SEP	2190	173	09/10:07	140	07/04:08	116	07/19:07	0	38.7
Lostwood NWR	2004	JUL-SEP	2188	41	09/12:12	29	07/22:08	29	07/28:01	0	14.3
Mandan - SPM	2004	JUL-SEP	2193	151	08/18:05	148	09/06:17	139	09/20:19	0	39.1
Mandan NW - SPM	2004	JUL-SEP	1806	167	07/31:10	133	07/31:09	126	08/15:12	0	49.2
TRNP - NU	2004	JUL-SEP	2194	9	07/01:10	9	07/01:12	9	08/03:01	0	16.5
TRNP - SU (Painted Canyon)	2004	JUL-SEP	2047	47	07/23:06	25	07/19:07	18	07/14:09	0	14.7

The highest 5-minute concentration is 173 ppb at Hannover on 09/10:07

* No Standard is currently in effect

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ozone (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A 8 - HOUR		3RD	4TH	1HR #>120	8HR #>80
				1ST MM/DD	2ND MM/DD	1ST MM/DD	2ND MM/DD				
Beulah - North	2004	JUL-SEP	2186	57 08/06	57 08/01	54 07/26	53 07/25	49 07/02	33 07/01		
Dunn Center	2004	JUL-SEP	2194	57 08/01	56 08/06	53 08/06	51 07/26	49 07/11	47 07/02		
Fargo NW	2004	JUL-SEP	2197	71 09/12	65 09/19	66 09/12	62 09/13	61 09/20	54 09/03		
Hannover	2004	JUL-SEP	2192	51 09/18	49 08/06	47 09/18	45 08/06	43 07/02	43 07/24		
Lostwood NWR	2004	JUL-SEP	2189	60 07/18	54 07/26	48 07/25	48 07/26	48 07/18	46 09/18		
TRNP - NU	2004	JUL-SEP	2196	70 08/01	64 08/07	61 08/06	60 07/26	58 07/31	58 08/07		
TRNP - SU (Painted Canyon)	2004	JUL-SEP	2049	58 07/26	56 07/02	56 07/26	55 07/02	54 08/06	31 07/01		

The highest 1-hour concentration is 71 ppb at Fargo NW on 09/12
The 4th highest 8-hour concentration is 58 ppb at TRNP - NU on 08/07

* The air quality standards for ozone are:

STATE - 120 ppb not to be exceeded more than once per year.

FEDERAL - Fourth highest daily maximum 8-hour averages for a 3-year period not to exceed 80 ppb.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Nitrogen Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 1 - HOUR		ARITH MEAN	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH		
Beulah - North	2004	JUL-SEP	2179	23 07/25:07	23 09/04:09	3.1	99.5
DGC #12	2004	JUL-SEP	2179	24 07/25:08	20 08/21:04	2.5	89.4
DGC #17	2004	JUL-SEP	2181	28 07/22:20	27 08/07:11	2.3	90.6
Dunn Center	2004	JUL-SEP	2183	21 08/04:01	14 07/11:07	2.1	89.7
Fargo NW	2004	JUL-SEP	2189	37 09/26:19	34 09/09:18	4.4	95.6
Hannover	2004	JUL-SEP	2185	26 07/11:09	21 08/02:00	2.2	93.8
Lostwood NWR	2004	JUL-SEP	2180	13 09/12:16	11 09/10:18	1.4	92.4
TRNP - NU	2004	JUL-SEP	2187	8 08/04:20	7 08/03:01	1.2	96.1

The maximum arithmetic mean concentration is 4.4 ppb at Fargo NW

* The air quality standards are:
STATE - 53 ppb maximum annual arithmetic mean.
FEDERAL - 53 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ammonia (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 1 - HOUR					
				1ST MM/DD:HH	2ND MM/DD:HH	3RD MM/DD:HH	4TH MM/DD:HH	5TH MM/DD:HH	6TH MM/DD:HH
Beulah - North	2004	JUL-SEP	2127	115.5 09/26:10	53.4 09/14:10	44.0 09/29:14	42.8 09/26:11	39.0 09/05:21	34.6 09/06:00

* No standard is currently in effect.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable Continuous PM_{2.5} Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	24HR #>65	AM>15
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD	3RD MM/DD	4TH MM/DD			
Beulah - North	2004	JUL-SEP	2194	34.6 09/14:09	33.9 09/14:08	18.8 08/17	18.1 08/16	13.7 07/24	12.7 09/14	6.8		
Dunn Center	2004	SEP-SEP	535	31.2 09/20:06	15.6 09/20:07	7.1 09/18	4.9 09/19	4.4 09/09	3.9 09/14	2.5		
Fargo NW	2004	JUL-SEP	2199	66.6 07/04:21	32.0 09/02:00	15.6 08/17	12.8 09/03	12.6 09/13	12.2 07/17	4.4		
Hannover	2004	JUL-SEP	2196	32.6 08/07:16	32.1 09/02:09	17.7 08/17	15.7 08/16	13.8 07/24	12.6 09/18	6.7		
Lostwood NWR	2004	JUL-SEP	2196	26.3 08/15:23	25.4 08/17:21	18.4 08/16	15.7 08/17	10.8 07/17	10.7 07/23	3.3		
TRNP - NU	2004	JUL-SEP	2197	41.2 09/02:05	28.1 08/16:06	19.8 08/16	14.0 08/17	10.3 08/15	9.6 09/19	3.1		
TRNP - SU (Painted Canyon)	2004	JUL-SEP	1924	36.2 08/16:03	32.0 07/17:20	23.5 08/16	18.9 08/17	13.3 07/23	11.8 08/15	6.7		

The highest 24-hour concentration is 23.5 µg/m³ at TRNP - SU (Painted Canyon) on 08/16
The highest arithmetic mean concentration is 6.8 µg/m³ at Beulah - North

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m³.
- 2) Annual: 3-year average not to exceed 15 µg/m³.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM_{2.5} Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A 24 - HOUR			ARITH MEAN	#> 65	AM>15	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Beulah - North	2004	JUL-SEP	16	2.6	9.7 09/30	9.1 09/18	8.6 07/20	6.4			100.0
Bismarck Residential	2004	JUL-SEP	30	2.2	14.0 08/16	12.3 07/17	11.1 07/23	6.5			100.0
Fargo NW	2004	JUL-SEP	31	1.5	15.9 07/17	15.2 09/03	13.3 09/12	6.7			96.8
TRNP - NU	2004	JUL-SEP	16	2.0	8.1 08/01	7.9 08/07	7.7 08/19	5.3			100.0
TRNP - SU (Painted Canyon)	2004	JUL-SEP	16	2.3	8.9 08/19	8.3 08/01	7.5 09/18	5.3			100.0

The highest 24-hour concentration is 15.9 µg/m³ at Fargo NW on 07/17
The highest arithmetic mean concentration is 6.7 µg/m³ at Fargo NW

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m³.
- 2) Annual: 3-year average not to exceed 15 µg/m³.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable Continuous PM₁₀ Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	24HR #>150	AM>50
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD	3RD MM/DD	4TH MM/DD			
Dunn Center	2004	SEP-SEP	535	44.0 09/26:15	37.0 09/26:17	21.8 09/18	19.5 09/19	17.7 09/09	16.9 09/26	12.0		
Fargo NW	2004	JUL-SEP	2057	133.0 08/20:19	131.0 08/20:20	49.8 08/17	45.1 09/02	38.9 07/27	37.8 09/03	19.8		
Lostwood NWR	2004	JUL-SEP	2196	70.0 09/02:05	69.0 09/28:11	28.0 09/18	27.2 08/17	26.6 08/16	25.8 09/28	12.8		
TRNP - NU	2004	JUL-SEP	2200	98.0 09/02:05	63.0 09/10:00	28.6 08/16	24.2 08/17	22.7 09/19	20.4 08/15	11.3		

The highest 24-hour concentration is 49.8 µg/m³ at Fargo NW on 08/17
The highest Annual Mean concentration is 19.8 µg/m³ at Fargo NW

* The STATE and FEDERAL air quality standards are:

- 1) 150 µg/m³ maximum averaged over a 24-hour period with no more than one expected exceedance per year.
- 2) 50 µg/m³ expected annual arithmetic mean.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM₁₀ Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A			ARITH MEAN	#>150	AM>50	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Bismarck Residential	2004	JUL-SEP	16	0.0	43.0 07/26	30.0 07/20	28.0 08/19	18.0			87.5

The maximum 24-hour concentration is 43.0 µg/m³ at Bismarck Residential on 07/26
The highest arithmetic mean concentration is 18.0 µg/m³ at Bismarck Residential

* The STATE and FEDERAL air quality standards are:

- 1) 150 µg/m³ maximum averaged over a 24-hour period with no more than one expected exceedance per year.
- 2) 50 g/m³ expected annual arithmetic mean.

SECTION THREE

EXCEEDANCE LISTINGS

By Site Date Hour

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ (µg/m³)

The * Identifies the Exceedances

NONE

By Date Hour Site

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ (µg/m³)

The * Identifies the Exceedances

NONE